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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LUU, MATTHEW	

ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/671,099	HANCOCK, WILLIAM R.	
	Examiner	Art Unit	
	LUU MATTHEW	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 6, 21-22, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trow et al (5,461,706) in view of Margadant (6,606,089) and Ritter et al (6,518,968).

Regarding claims 1 and 21, Trow discloses (Figs. 2 and 3) a method of representing an arc (C0), the method comprising:

selecting multiple vertices (Fig. 3, (L0P0) and (P3R3) of the arc (Cl-Cr));

determining trapezoids ((P0-P4), and (P0, L1-R2 and P3)) corresponding to the vertices.

Trow further discloses (Fig. 4A and 4B) a multiple of rows and columns texture mapping (Column 7, lines 25-26).

The only difference between the disclosure of Trow and the claimed invention is that the claim requires obtaining a texture map for mapping the texture to the trapezoids.

However, Margadant also discloses (Figs. 1, 3-5 and 7) a method of representing an arc (Figs. 1, 3 and 4), the method comprising:

obtaining a texture map for mapping a trapezoid. See column 7, lines 17-45.

Therefore, it would have been obvious to a person of ordinary skill in the art to use the texture maps for mapping texture to polygons or trapezoid, as taught by Margadant, into the a method for representing an arc of Trow to provide a pictorial representation of the arc through superposition of texture maps.

Regarding to the texture having multiple rows that transition from dark to light, etc., Ritters et al (6,518,968) teaches texture coordinate gradient vectors are calculated for bump mapping algorithm. Furthermore, it is well-known in the art that bump mapping is a technique that provides lighting effects that show the texture of the surface in such a way that the light and dark areas on the surface generated by the lighting will change in accordance with the changes in the positioning of the light source in the scene (Column 2, lines 34-42).

Therefore, it would have been obvious to the person of ordinary in the art to use the well-known bump mapping technique of Ritters et al into the rows and columns texture mapping of Trow (Figs. 4A and 4B) to provide lighting effects in the arc representation technique of Trow.

Regarding claims 2 and 22, Trow discloses (Fig. 2) wherein the trapezoids extend along the arc between adjacent vertices (L0P0 and P3R3).

Regarding claims 6 and 26, Trow discloses (Fig. 4A) a multiple radials of arc.

Regarding claim 27, since Margadant teaches a multiple texture maps, it would have been obvious that there would be a memory in Margadant to store the multiple texture maps.

Claim Rejections - 35 USC § 103

Claims 3-5 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trow in view of Margadant and Ritter as applied to claims 1-2 and 21-22 above, and further in view of Foley "Computer Graphics: Principles and Practice, Second Edition".

Regarding claims 3-5 and 23-25, Trow fails to teach the forming of the shorter side and the longer side of the trapezoid in accordance with the arc.

However, Foley discloses (Fig. 11.27, pages 500-501) a multiple variation for forming a trapezoid in accordance with the arc or the curves.

It would have been obvious to the person of ordinary skill in the art to use the technique for forming the trapezoid in accordance with the arc of Foley into the method for representing an arc of Trow since this is only an obvious design choice.

Claim Rejections - 35 USC § 103

Claims 7-20 and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trow in view of Margadant and Ritter as applied to claims 1 and 6 above, and further in view of Cosman (5,579,456).

Regarding claims 7-9, Trow fails to disclose the rectangular texture and the texture patch.

However, Cosman discloses (Fig. 2) the use of texture patch in a trapezoidal shape.

Therefore, it would have been obvious to the person of ordinary skill in the art to use the square polygon texture patch of Cosman into the arc representing method of Trow to create a dynamic textured display images.

Furthermore, using a rectangular texture map and reducing line anti-aliasing is well known to be available with most graphics chips.

Regarding claims 10-12, Cosman further discloses (Figs. 9 and 12) triangular meshes. Therefore, the triangle meshes are considered to be the fraction of the full trapezoids.

Regarding claims 13 and 28, Trow discloses (Figs. 2 and 3) a method of representing an arc (C0), the method comprising;

selecting multiple vertices (Fig. 3, (L0P0) and (P3R3) of the arc (Cl-Cr));

determining trapezoids ((P0-P4), and (P0, L1-R2 and P3)) corresponding to the vertices.

Trow further discloses (Fig. 4A and 4B) a multiple of rows and columns texture mapping (Column 7, lines 25-26).

The only difference between the disclosure of Trow and the claimed invention is that the claim requires obtaining a texture map for mapping the texture to the trapezoids.

However, Margadant also discloses (Figs. 1, 3-5 and 7) a method of representing an arc (Figs. 1, 3 and 4), the method comprising:

obtaining a texture map for mapping a trapezoid. See column 7, lines 17-45.

Therefore, it would have been obvious to a person of ordinary skill in the art to use the texture maps for mapping texture to polygons or trapezoid, as taught by Margadant, into the a method for representing an arc of Trow to provide a pictorial representation of the arc through superposition of texture maps.

Regarding to the texture having multiple rows that transition from dark to light, etc., Ritters et al (6,518,968) teaches texture coordinate gradient vectors are calculated for bump mapping algorithm. Furthermore, it is well-known in the art that bump mapping is a technique that provides lighting effects that show the texture of the surface in such a way that the light and dark areas on the surface generated by the lighting will change in accordance with the changes in the positioning of the light source in the scene (Column 2, lines 34-42).

Therefore, it would have been obvious to the person of ordinary in the art to use the well-known bump mapping technique of Ritters et al into the rows and columns texture mapping of Trow (Figs. 4A and 4B) to provide lighting effects in the arc representation technique of Trow.

Cosman further discloses (Figs. 9 and 12) triangular meshes. Therefore, the triangle meshes are considered to be the fraction of the full trapezoids.

Regarding claims 14 and 29, reducing line anti-aliasing is well known to be available with most graphics chips.

Regarding claims 15 and 30, Ritters et al (6,518,968) teaches texture coordinate gradient vectors are calculated for bump mapping algorithm. Furthermore, it is well-known in the art that bump mapping is a technique that provides lighting effects that show the texture of the surface in such a way that the light and dark areas on the surface generated by the lighting will change in accordance with the changes in the positioning of the light source in the scene (Column 2, lines 34-42).

Therefore, it would have been obvious to the person of ordinary in the art to use the well-known bump mapping technique of Ritters et al into the rows and columns texture mapping of Trow (Figs. 4A and 4B) to provide lighting effects in the arc representation technique of Trow.

Regarding claim 16, Cosman discloses (Fig. 2) the use of texture patch in a trapezoidal shape.

Regarding claim 17, applying a reverse perspective view transformation of a graphics image is well known in the art.

Regarding claims 18-19 and 31-32, Foley discloses (Fig. 11.27, pages 500-501) a multiple variation for forming a trapezoid in accordance with the arc or the curves.

It would have been obvious to the person of ordinary skill in the art to use the technique for forming the trapezoid in accordance with the arc of Foley into the method for representing an arc of Trow since this is only an obvious design choice and conventional in the art.

Regarding claims 20 and 33, Margadant also discloses rectangular texture (Column 8, lines 21-31).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Miller, Jr. et al (5,224,208) disclose gradient calculation for texture mapping.

-Kelly et al (5,319,744) disclose a polygon fragmentation method of distortion correction in computer image generating systems.

-Horton et al (US 2004/0160453) a system and method for resampling texture maps.

-Michail et al (US 2004/0263516) disclose the method for rendering a primitive, which is subdivided into trapezoids and triangles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUU MATTHEW whose telephone number is (571) 272-7663. The examiner can normally be reached on Flexible Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BELLA MATTHEW can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Luu

MATTHEW LUU
PRIMARY EXAMINER